

DERWENT-ACC-NO: 1999-603252

DERWENT-WEEK: 200273

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TITLE: Zirconium alloy tube, used as a nuclear fuel rod
cladding tube or a nuclear fuel assembly guide
tube, is
produced

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	
PAGES MAIN-IPC			
RU 2187155 C2	August 10, 2002	N/A	000
G21C 003/07			
FR 2776821 A1	October 1, 1999	N/A	007
G21C 003/07			
WO 9950854 A1	October 7, 1999	F	000
N/A			
EP 1068621 A1	January 17, 2001	F	000
G21C 003/07			
CN 1298542 A	June 6, 2001	N/A	000
G21C 003/07			
KR 2001042319 A	May 25, 2001	N/A	000
G21C 003/07			
TW 440875 A	June 16, 2001	N/A	000
G21C 013/032			
JP 2002509991 W	April 2, 2002	N/A	015
C22C 016/00			
ZA 200005472 A	March 27, 2002	N/A	025
G21C 000/00			

DESIGNATED-STATES: CN JP KR RU US ZA AT BE CH CY DE DK ES FI FR GB GR
IE IT LU
MC NL PT SE BE DE ES FR GB SE

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
RU 2187155C2	N/A	1999WO-FR00737
March 30, 1999		
RU 2187155C2	N/A	2000RU-0125563
March 30, 1999		

RU 2187155C2	Based on	WO 9950854	N/A
FR 2776821A1	N/A	1998FR-0003970	
March 31, 1998			
WO 9950854A1	N/A	1999WO-FR00737	
March 30, 1999			
EP 1068621A1	N/A	1999EP-0910461	
March 30, 1999			
EP 1068621A1	N/A	1999WO-FR00737	
March 30, 1999			
EP 1068621A1	Based on	WO 9950854	N/A
CN 1298542A	N/A	1999CN-0805408	
March 30, 1999			
KR2001042319A	N/A	2000KR-0710868	
September 29, 2000			
TW 440875A	N/A	1999TW-0104980	
April 28, 1999			
JP2002509991W	N/A	1999WO-FR00737	
March 30, 1999			
JP2002509991W	N/A	2000JP-0541690	
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JP2002509991W	Based on	WO 9950854	N/A
ZA 200005472A	N/A	2000ZA-0005472	
October 6, 2000			

INT-CL (IPC): C22C016/00, G21C000/00 , G21C003/07 , G21C003/30 ,
G21C013/032 , G21C021/00

ABSTRACTED-PUB-NO: FR 2776821A

BASIC-ABSTRACT:

NOVELTY - A zirconium alloy tube is produced by heat treatment, extrusion and cold rolling of a zirconium-niobium alloy of relatively high total iron and chromium or vanadium content.

DETAILED DESCRIPTION - A tube is produced by subjecting a rod of zirconium alloy, which contains (by wt.) 0.03-0.30% total Fe and Cr or V, 0.8-1.3% Nb, less than 300 ppm Sn, less than 1600 ppm O, less than 100 ppm C, 5-30 ppm S and less than 50 ppm Si, to water quenching from 1000-1200 deg. C, extrusion at 600-800 deg. C, cold rolling in four or more passes with intermediate anneals at 560-620 deg. C and final annealing at 560-620 deg. C, all the heat treatments being carried out in an inert atmosphere or under vacuum.

USE - For production of a nuclear fuel rod cladding tube or a nuclear fuel assembly guide tube, especially a fuel rod cladding tube for a PWR.

ADVANTAGE - The tube contains intermetallic compounds (Laves phase) of Zr(Nb, Fe, Cr)₂ type which reduces the quantity of beta phase niobium

precipitates and
the solid solution niobium content to provide increased resistance to
corrosion
by lithium-containing media, without affecting the uniform corrosion
resistance
at about 400 deg. C and without requiring an excessive number of
rolling
operations during tube production.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: ZIRCONIUM ALLOY TUBE NUCLEAR FUEL ROD CLAD TUBE NUCLEAR
FUEL

ASSEMBLE GUIDE TUBE PRODUCE

DERWENT-CLASS: K05 M26 X14

CPI-CODES: K05-B04; K05-B04B; M26-B06; M26-B06C; M26-B06J; M26-B06N;
M26-B06V;

EPI-CODES: X14-B04A;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1999-175732

Non-CPI Secondary Accession Numbers: N1999-444881